ORE001 – INTRODUCTION TO RENEWABLE ENERGY

3 Semester Hours

Related TAGs: Solar Energy, Wind Energy

Student Learning Outcomes marked with an asterisk (*) are considered essential and must be covered:

1. Identify, compare, and contrast various energy sources including fossil fuels, nuclear energy, alternative energy, and renewable energy. *
2. Demonstrate a comprehensive knowledge of energy and energy systems for utility, commercial, and/or residential use. *
3. Demonstrate an introductory knowledge about the system configuration options, components, construction and basic installation and design of the various renewable energy generation systems. *
4. Understand the roles, responsibilities, regulations, and economics pertaining to renewable energy systems. *
5. Identify the disciplines and career areas associated with advanced and renewable energy. *

ORE002 – SOLAR THERMAL

3 Semester Hours

Related TAGs: Solar Energy

Student Learning Outcomes marked with an asterisk (*) are considered essential and must be covered:

1. Understand the differences and similarities between solar thermal and solar electric. *
2. Understand concentrating and non-concentrating solar thermal *
3. Perform site analysis, including load analysis*
4. Demonstrate knowledge of solar heating safety practices, standards, codes, and certifications*
5. Evaluate systems for specific climates and applications*
6. Demonstrate knowledge of operation and installation methods*
7. Describe proper use of balance-of-system components and materials (e.g., controllers, tanks, pumps and valves) *
8. Demonstrate knowledge of Solar Heating Maintenance*
9. Identify disciplines and career areas associated with solar energy. *

ORE003 – SOLAR PHOTOVOLTAIC

3 Semester Hours

Related TAGs: Solar Energy

Student Learning Outcomes marked with an asterisk (*) are considered essential and must be covered:

1. Identify PV markets and applications. *
2. Internalize PV specific safety basics. *
3. Demonstrate basic electric knowledge. *
4. Understand solar energy PV cell and module fundamentals. *
5. Explain the various solar PV system configurations. *
6. Perform a site assessment. *
7. Identify and select system components. *
8. Complete a PV system design. *
9. Understand what is necessary for PV system maintenance and troubleshooting. *
10. Demonstrate knowledge of disciplines and career areas associated with solar energy. *

ORE004 – SAFETY

1 Semester Hour
Advising Note: Follow OSHA General Training 10-Hour Card

Related TAGs: Solar Energy, Wind Energy

Student Learning Outcomes marked with an asterisk (*) are considered essential and must be covered:

1. Define and use correctly terms used in OSHA (29 CFR part 1926) *
2. Explain methods of energy control, fall protection and other related safety topics*
3. Indicate what must be included in general scaffolding requirements*
4. Demonstrate the use and maintenance of personal protection equipment*
5. Identify general safety and health provisions required during construction*
6. Demonstrate an understanding of OSHA safety requirements*
7. Discuss the competent/qualified person requirements*
8. Describe the circumstances when approved personal protective equipment must be worn, as well as the appropriate personal protective equipment for a given circumstance*

ORE005 – WIND ENERGY

3 Semester Hours

Related TAGs: Wind Energy

Student Learning Outcomes marked with an asterisk (*) are considered essential and must be covered:

1. Determine the potential wind available from a given site and calculate the electrical energy that could be achieved. *
2. Summarize the sizes and variations of different wind turbines including residential and commercial systems. *
3. Identify and select the main components and construction of a wind turbine. *
4. Demonstrate basic electric knowledge. *
5. Discuss the basic considerations, regulations, and criteria for constructing a wind turbine in a given area. *
6. Evaluate relevant conditions and determine size of and energy potential of a wind turbine in a given area. *
7. Determine wind turbine system design and installation for a specific site. *
8. Demonstrate knowledge of disciplines and career areas associated with wind energy. *